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# (12) United States Patent Holladay

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#### (54) MULTI-FOCAL INTRAOCULAR LENS SYSTEM AND METHODS FOR DYNAMIC VISUAL ENVIRONMENTS

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(2006.01)

(58) Field of Classification Search

CPC ....... A61B 3/10; A61B 3/112; A61F 2/1618; A61F 2/1624; G02B 7/34; G02B 17/0884; G02B 27/0081 (10) Patent No.: US 9,066,796 B2 (45) Date of Patent: Jun. 30, 2015

USPC ......... 250/201.1, 201.2, 559.38; 356/3, 4.01; 345/127, 128, 129, 130, 131, 147, 156, 345/201, 472.1, 472.2, 670, 671

See application file for complete search history.

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### (57) ABSTRACT

The invention pertains to methods, components, and operations of multi-focal intraocular lens systems, including range finding for driving same and for discriminating between multiple objects and varying brightness conditions. The invention also pertains to intraocular photosensors and range-finding methods to be used with intra-ocular lens systems, and components, that provide multi-focal IOL capabilities in dynamic visual environments.

#### 5 Claims, 19 Drawing Sheets

